

# EBASCO

October 8, 1993  
ARCS II-93-58-153

Ms. Helen Shannon  
Work Assignment Manager  
US Environmental Protection Agency  
26 Federal Plaza  
New York, NY 10278

SUBJECT: ARCS II PROGRAM - EPA CONTRACT NO. 68-W8-0110  
WORK ASSIGNMENT 058-2J00 - FEDERAL FACILITY PA/SI REVIEWS  
SUPPLEMENTAL SI REVIEW - KNOLLS KESSELRING SITE

## REFERENCES:

1. Department of Energy Letter REC&SD:DAD#45 to Mr. Robert Wing, Section Chief, Federal Facilities Section, U.S. Environmental Protection Agency, Region II, dated July 30, 1993, Subject: Final Report Package for KAPL Expanded Site Inspection; Addendum to Preliminary Assessments for Knolls and Kesselring Sites
2. Ebasco Letter ARCS II-93-058-150, dated August 19, 1993, SUBJECT: Supplemental SI Reviews for the Knolls Sites
3. Expanded Site Inspection, Knolls and Knolls Kesselring Sites, Knolls Atomic Power Laboratory, prepared for Knolls Atomic Power Laboratory by McLaren/Hart Environmental Engineering Corporation, Albany, New York, July 6, 1993.

Dear Ms. Shannon:

This letter presents the results of Ebasco's Supplemental Site Inspection Review for the Knolls Atomic Power Laboratory - Kesselring site. The purpose of this review was to determine if the data presented supports the Department of Energy (DOE) position put forth in the referenced letter. In that letter, DOE states,

"The validated ESI analytical results confirm that there are no elevated levels of any target constituents in KAPL surface water sediments that can be attributed to KAPL waste management practices. Since the results are all negative, it is not necessary to complete the ESI score sheets for the surface water pathway, as originally planned."

In addition, this report also presents a preliminary HRS score using the PREscore program. Ebasco recommended that this be accomplished as part of the review process in Reference 2.



This letter report is divided into three sections. Section I presents Ebasco's review of the analytical results. Section II provides an explanation of the PREscore evaluation. Section III summarizes the conclusions presented within the text of the letter report.

### *Section I - Review of the Analytical Results*

Due to laboratory problems stated in the McLaren Hart Report (Reference 3), sediment samples KSO-SD-3 and KSO-SD-4 were not analyzed for TAL metals. However, resampling is not required for the following reasons:

- o Sample KSO-SD-5 was taken within 500 feet of KSO-SD-4 and provides data for the unnamed tributary.
- o Although the inorganic data from sample KSO-SD-3 would be valuable in tracing the migration of contaminants from the Security Area, the absence of this data is not a determining factor in whether or not the site score exceeds the threshold for CERCLA action.

Ebasco questions the designation of sample KSO-SD-5 as a background sample. Its location is immediately downhill from the Parkis Mills Road Cellar waste unit and receives overland flow from the former disposal area. Sample KSO-SD-6, taken at the extreme western border of the KAPL Kesselring site on Glowegee Creek, is used as a background sample for all sediment samples in the drainage area.

After reviewing the data presented in Reference 3, Ebasco disagrees with the DOE position that there are no elevated concentrations of target compounds attributable to KAPL waste management practices for the following reasons:

1. Mercury was detected in sediment sample KSO-SD-2 (60 ug/kg)(please refer to Figure 1 for sediment sampling locations) at a level equal to three times the background samples KSO-SD-6 (20 ug/kg). There is documented evidence in the Preliminary Assessment (PA), U.S. DOE Knolls Atomic Power Laboratory Kesselring Site - April 1988, that mercury containing wastes were generated and disposed of on site (page 27). Therefore, the presence of mercury in this sample can be attributed to past site waste management practices.
2. Fluoranthene was detected in sediment sample KSO-SD-2 (50 ug/kg) but not in the background sample KSO-SD-6. Fluoranthene is a polycyclic aromatic hydrocarbon (PAH) associated with fossil fuels. In the PA performed for the Kesselring site, there is evidence that waste oils and oily wastes were disposed of on site (page 27). Therefore, the presence of fluoranthene in this sample can be attributed to past site waste management practices.
3. Lead was detected in sediment sample KSO-SD-4 (14,800 ug/kg) at a level exceeding three times the background sample KSO-SD-6 (4,800 ug/kg). Lead acid batteries and lead bricks are documented to have been used and disposed of on-

site. Approximately 3000 pounds of lead were disposed of at Firing Range 1 and 200 pounds of lead were disposed of at Firing Range 2. Therefore, the presence of lead in sample KSO-SD-4 can be attributed to past site activities.

4. Lead (17,400 ug/kg), mercury (120 ug/kg), and vanadium (29,100 ug/kg) were detected in sediment sample KSO-SD-5 at levels exceeding three times the background sample KSO-SD-6. Lead, mercury, and vanadium wastes are documented to have been disposed of on-site.

Elevated levels (exceeding three times the background sample KSO-SD-6) of aluminum, barium, beryllium, cobalt, silver, and the pesticide 4,4'-DDT were present in sample KSO-SD-5, however there is no documented evidence available in the PA or the KAPL Environmental Monitoring Report, Calendar Year 1990 that can definitively attribute the presence of these contaminants in the sediment sample to past on-site waste disposal practices.

Phthalates were detected in sediment samples KSO-SD-1 (diethyl phthalate at 650 ug/kg) and KSO-SD-2 (di-n-butylphthalate at 52 ug/kg) but not in the background sample KSO-SD-6. Phthalates are plasticizers associated with plastic products, but there is no evidence to definitively attribute the contamination to site activities.

Pesticides were detected in sediment samples KSO-SD-1 (Endosulfan II at .13 ug/kg) and KSO-SD-2 (Endosulfan Sulfate at 25 ug/kg) but not in background sample KSO-SD-6. There is no documented evidence available that pesticides were used or disposed of on-site.

In addition to the sediment data, there is also reason to believe that the elevated concentrations of target compounds in the groundwater are attributable to prior KAPL waste management practices. The evidence for this statement is presented below, and groundwater contaminant concentrations are presented in Table 1.

1. Several volatile chlorinated hydrocarbons were detected at low levels (<10 ug/l) in the downgradient monitoring wells at the current landfill (KTH-2, KTH-5, and KTH-7)(Please refer to Figure 2 for well locations). The presence of these contaminants is most likely attributable to the percolation of water infiltrating from the surface through fill materials (KAPL Environmental Monitoring Report, Calendar Year 1990, pages 54-57).
2. Halogenated volatile compounds were detected in the groundwater samples taken at wells MW-4, MW-6, and MW-16 in the Security Area (please see Table 1). Paints, solvents, and adhesives are documented to have been used on-site.

Elevated levels of several inorganic compounds, including aluminum, boron, cadmium, and cyanide are present in many of the monitoring wells, but there is no documented evidence available that can definitively attribute the presence of these compounds to past waste management practices.

## ***Section II - Preliminary Site Score***

After reviewing the available information, the site was scored using the PREscore computer program (Version 2.0, Publication 9345.1-04A, NTIS #: PB93-963322, May 1993). The scoring adhered to the requirements of the Hazard Ranking System; Final Rule (40 CFR Part 300). The overall site score was 70.83, which exceeds the threshold for CERCLA Action. The site record information and score sheets are provided as Attachment 1 to this letter report. The results of the sensitivity analysis are provided in Table 2 at Attachment 2.

The site score is strongly influenced by both the groundwater and surface water migration pathways. Both pathway scores are at the 100 point maximum and can individually drive the site score above the threshold for CERCLA action (28.5). The soil exposure and air migration pathways are not significant contributors to the overall site score. The impacts of the individual pathways are discussed below:

### **GROUNDWATER MIGRATION PATHWAY**

The groundwater migration pathway score is 100.00. The pathway was evaluated as an observed release due to the presence of several target compounds at levels exceeding three times background in groundwater samples (please refer to Table 1). The waste characterization component is influenced by the presence of large amounts of lead at the two firing ranges on-site, however even when the firing range lead is eliminated from the scoring process the resulting groundwater pathway score (64.85) will still cause the overall site score to exceed the threshold for CERCLA action.

### **SURFACE WATER MIGRATION PATHWAY.**

The surface water migration pathway score is 100.00. The pathway was evaluated as an observed release due to the presence of elevated levels of organic and inorganic compounds in the sediment samples. Although there are no surface water intakes on the 15-mile surface water pathway (drinking water component of the pathway score = 0.00), there are substantial food chain (100.00) and environmental (60.00) factors. The Glowegee Creek and Kayaderosseras Creeks are important recreational fisheries. There are also numerous wetlands areas on-site and along the down stream surface water pathway.

### **SOIL EXPOSURE PATHWAY**

The soil exposure pathway score is 0.00. The resident population component of this pathway did not score due to a lack of targets. There are no homes, day care facilities, or schools within 1/4 mile of the site. The nearby population component did not score due to the restricted site access conditions.

### **AIR MIGRATION PATHWAY**

The air migration pathway score is 8.15. The pathway was evaluated as having a

potential to release, since there is no documented evidence that a release to the air pathway has occurred. This pathway score is sensitive to the impacts of the firing range lead, but the low pathway score has only a small impact on the overall site score.

### ***Section III - Conclusions***

Ebasco disagrees with the DOE statement, "The validated ESI analytical results confirm that there are no elevated levels of any target constituents in KAPL surface water sediments that can be attributed to KAPL waste management practices." The sediment data analytical results show elevated concentrations (exceeding three times background) of mercury, lead, vanadium, and fluoranthene that can be attributed to site activities.

Ebasco questions the designation of sediment sample KSO-SD-5 as a background sample. The location where this sample was collected is in a topographic low directly downhill from the Parkis Mills Road Cellar waste unit and receives surface runoff from this area. Because the unnamed tributary of the Glowegee Creek (as designated in the McLaren Hart report) originates on-site within 500 feet of the location where sample KSO-SD-5 was collected, a background sample cannot be obtained. Therefore, sediment sample KSO-SD-6, taken at the far western boundary of the KAPL Kesselring site, is used as a representative background sample for the drainage area.

Due to laboratory problems stated in the McLaren Hart report, sediment samples KSO-SD-3 and KSO-SD-4 were not analyzed for TAL metals. However, resampling is not required.

The DOE statement, "Since the results are all negative, it is not necessary to complete the ESI score sheets for the surface water pathway, as originally planned," is incorrect. The site score calculated using PREscore exceeds the threshold for CERCLA action, therefore the score sheets should be prepared.

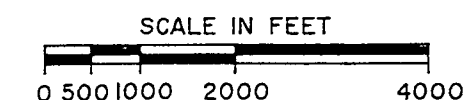
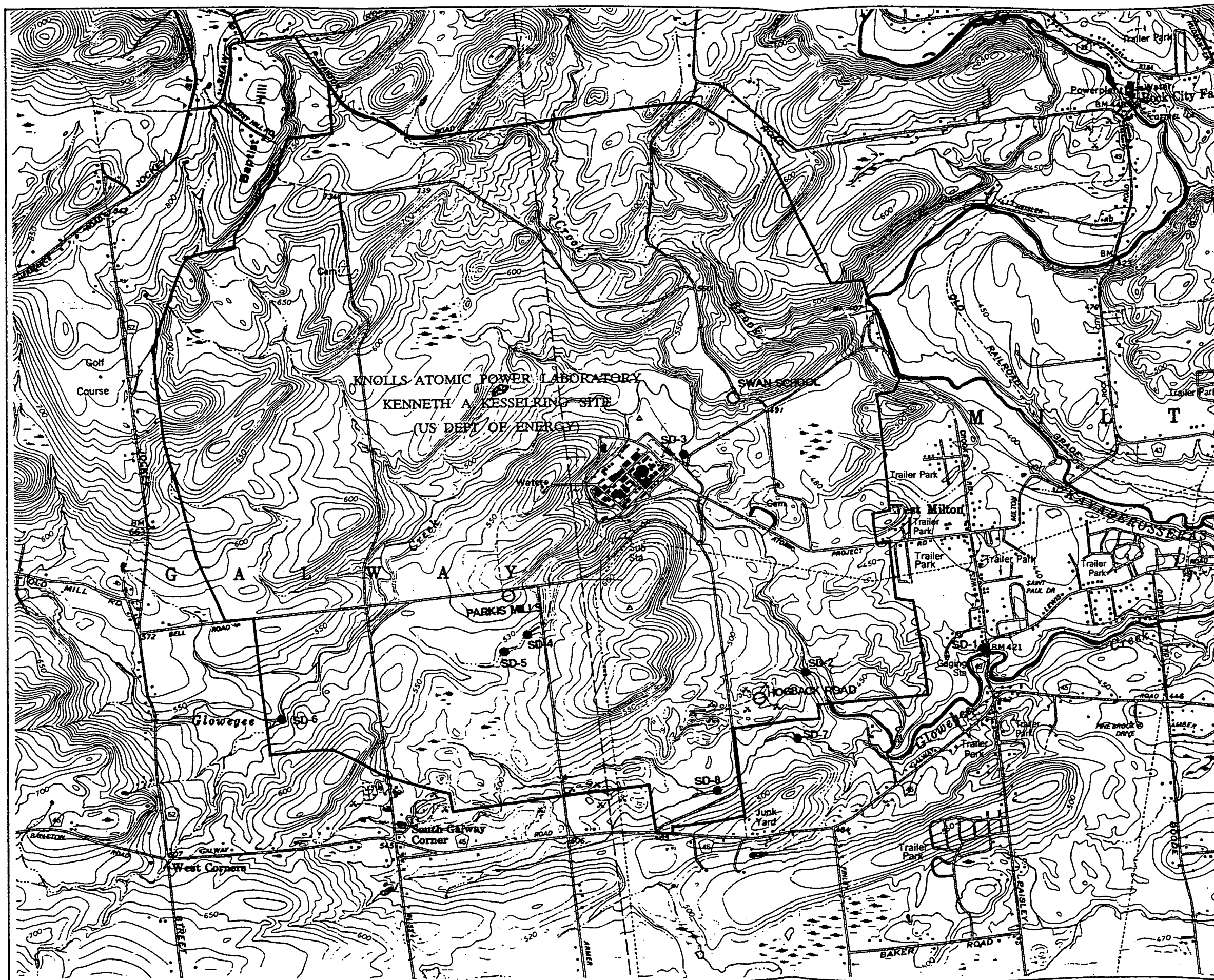
Please do not hesitate to contact me at (201) 460-602 if you have any questions concerning this letter report or if I can be of further assistance on this matter.

Very truly yours,

A handwritten signature in black ink, appearing to read "Howard S. Lazarus", written in a cursive style.

Howard S. Lazarus  
Site Manager

Attachments



LEGEND:

- SEDIMENT SAMPLE LOCATION
- PROBABLE POINT OF ENTRY OF POLLUTANTS

FIGURE 1



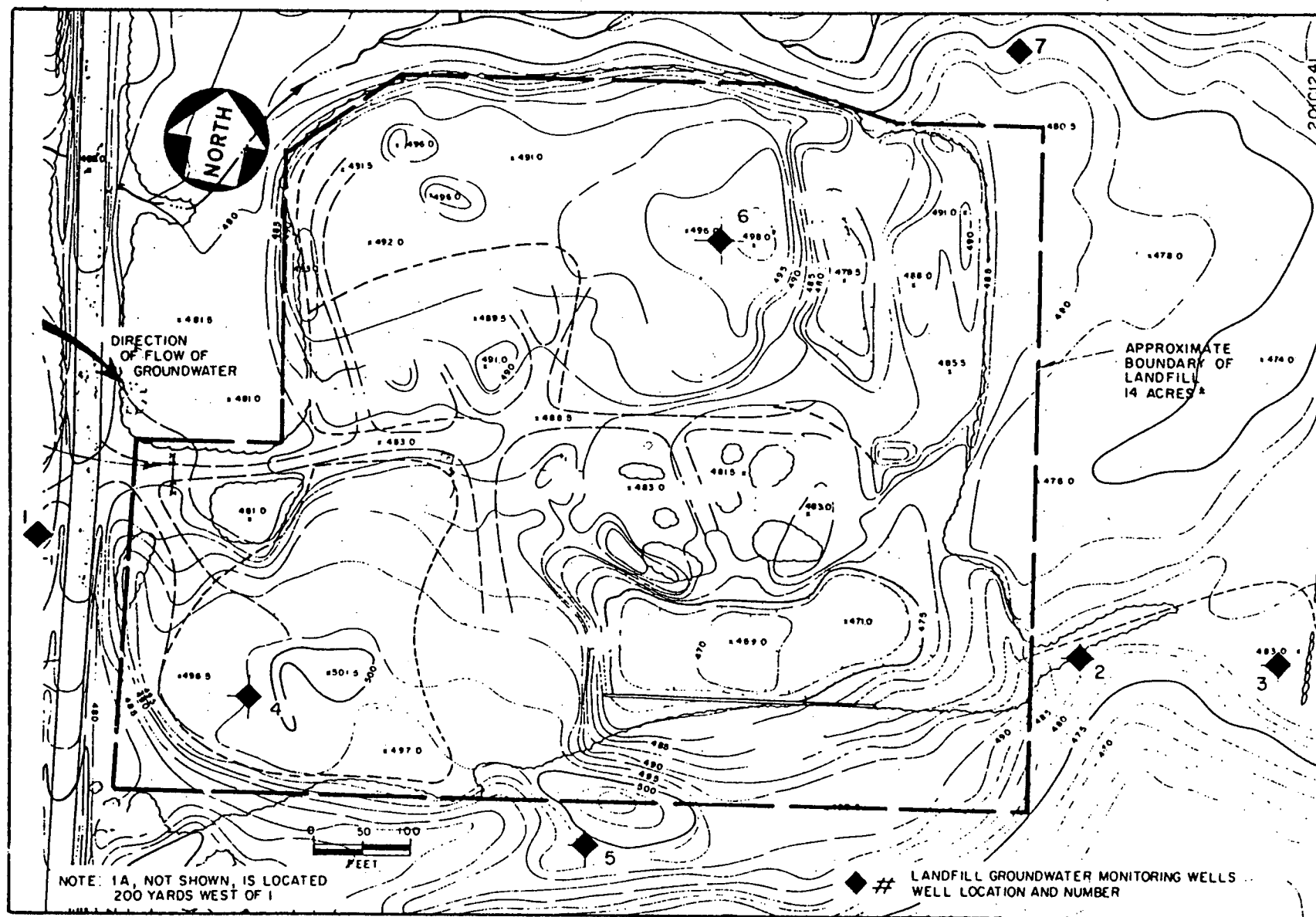
McLAREN/HART  
ENVIRONMENTAL ENGINEERING CORPORATION  
28 Madison Avenue Extension  
Albany, NY 12203

SEDIMENT SAMPLING LOCATIONS  
KNOLLS ATOMIC POWER LABORATORY  
KESSELRING SITE

TOWNS OF MILTON/GALWAY SARATOGA COUNTY, NY

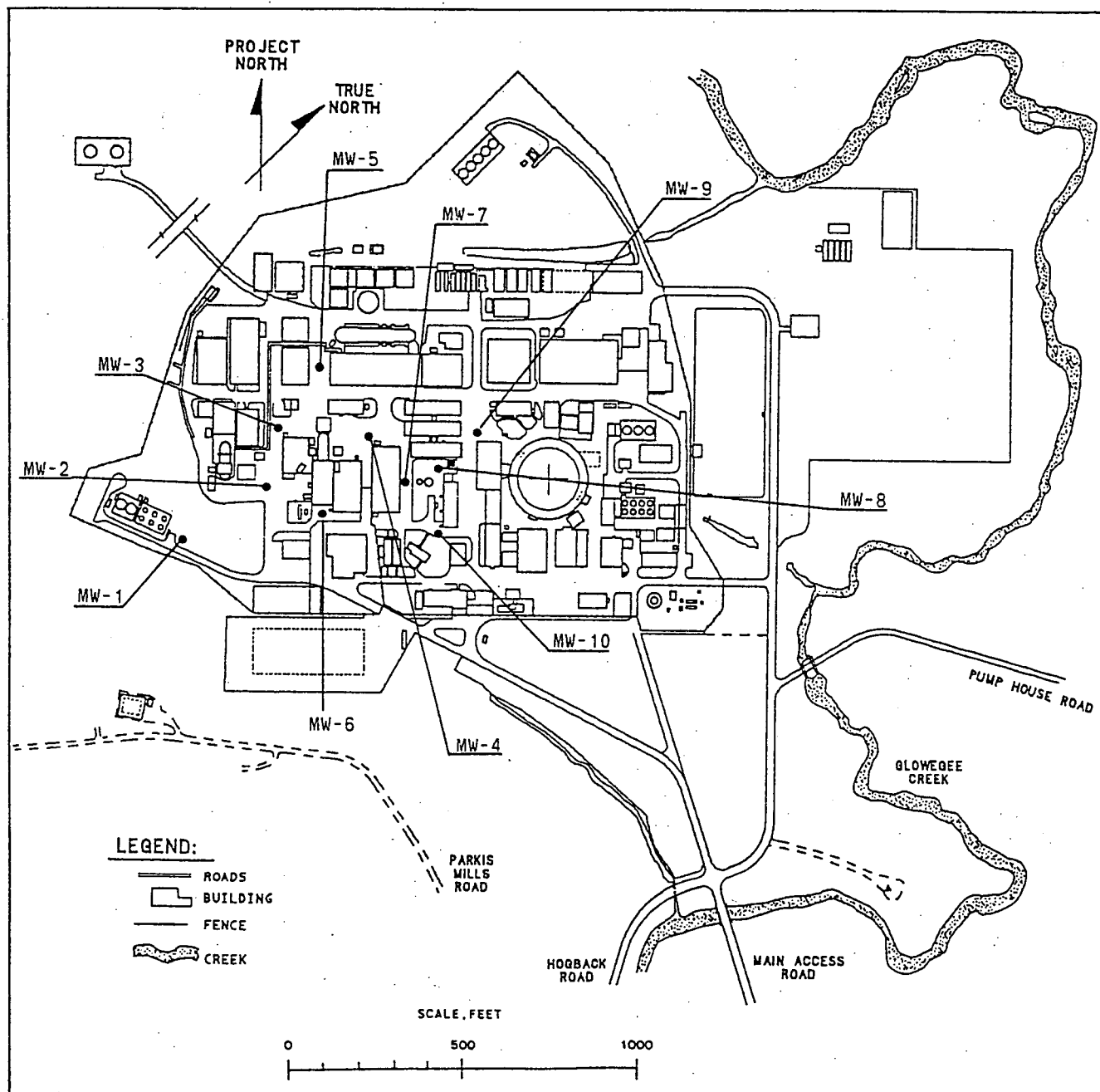
cc: M S Alvi (EPA) (w/o attachments)  
K Moncino (EPA) (w/o attachments)  
D Butler (EPA) (w/o attachments)  
R Wing (EPA) (w/o attachments)  
D Sachdev (w/o attachments)  
M Kuo (w/o attachments)  
Project File

Figure 2



Kesselring Site, Near West Milton, New York  
Groundwater Monitoring Wells





**Kesselring Site, Near West Milton, New York  
Security Area Groundwater Monitoring Wells  
Figure 13**

TABLE 1 - ANALYTICAL RESULTS USED FOR GROUNDWATER PATHWAY

Parameter	LANDFILL WELLS				SECURITY AREA WELLS										
	KTH-1/1A	KTH-2	KTH-5	KTH-7	MW-12	MW-3	MW-4	MW-6	MW-7	MW-9	MW-10	MW-11	MW-16	MW-18	MW-19
Ammonia	ND				ND										66000
Lead	ND				ND				20			50		10	
Manganese	20	50	1900	560	ND										
Sodium	3420		84000		11000	500000	233000	200000	810000	660000	710000	980000	196000	130000	249000
1,1-Dichloroethane	ND		3	2	NA										
1,2-Dichloroethane	ND	5			NA										
trans-1,2-Dichloroethene	ND		5		NA										
Dichlorodifluoromethane	ND				ND		10						4		
Tetrachloroethene	ND				ND			5							
Trichloroethylene	ND				ND		11						4		

Background wells are shown in bold print

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**ATTACHMENT 1**

HRS DOCUMENTATION RECORD  
Knolls Kesselring - 10/03/93

1. Site Name: Knolls Kesselring  
(as entered in CERCLIS)
2. Site CERCLIS Number: NY5890008993
3. Site Reviewer: Ebasco Services Inc
4. Date: 10/08/93
5. Site Location: West Milton/Saratoga, NY  
(City/County,State)
6. Congressional District: 24
7. Site Coordinates: Single

Latitude: 43 02'30.

Longitude: 73 57'30.

	Score
Ground Water Migration Pathway Score (Sgw)	100.00
Surface Water Migration Pathway Score (Ssw)	100.00
Soil Exposure Pathway Score (Ss)	0.00
Air Migration Pathway Score (Sa)	8.15
Site Score	70.83

## NOTE

EPA uses the terms "facility," "site," and "release" interchangeably. The term "facility" is broadly defined in CERCLA to include any area where hazardous substances have "come to be located" (CERCLA Section 109(9)), and the listing process is not intended to define or reflect boundaries of such facilities or releases. Site names, and references to specific parcels or properties, are provided for general identification purposes only. Knowledge regarding the extent of sites will be refined as more information is developed during the RI/FS and even during implementation of the remedy.

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Security Area

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Security Area	
b. Source Type	Contaminated Soil	
c. Secondary Source Type	N.A.	
d. Source Vol.(yd3/gal)   Source Area (ft2)	0.00	3240000.00
e. Source Volume/Area Value	9.53E+01	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	0.00E+00	
g. Data Complete?	NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	0.00E+00	
i. Data Complete?	NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	9.53E+01	

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Baptist Hill Rd LF

a. Wastestream ID	Waste
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	386000.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	7.72E+01

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Baptist Hill Rd LF	
b. Source Type	Landfill	
c. Secondary Source Type	N.A.	
d. Source Vol.(yd3/gal)   Source Area (ft2)	0.00	0.00
e. Source Volume/Area Value	0.00E+00	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	0.00E+00	
g. Data Complete?	NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	7.72E+01	
i. Data Complete?	NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	7.72E+01	

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Swan School Rd

a. Wastestream ID	Battery Acid
b. Hazardous Constituent Quantity (C) (lbs.)	3000.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	3000.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	6.00E-01

Wastestream Constituent  
Hazardous Substances

	Concent.	Units	Liquid	Qualifier
Lead	5.0E+01	%	NO	
Sulfuric acid	5.0E+01	%	YES	

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Swan School Rd	
b. Source Type	Surface Impoundment	
c. Secondary Source Type	N.A.	
d. Source Vol.(yd3/gal)   Source Area (ft2)	0.00	0.00
e. Source Volume/Area Value	0.00E+00	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	3.00E+03	
g. Data Complete?	NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	6.00E-01	
i. Data Complete?	NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	3.00E+03	

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Silo Area

a. Wastestream ID	Waste Oil
b. Hazardous Constituent Quantity (C) (lbs.)	50.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	50.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	1.00E-02

Wastestream Constituent  
Hazardous Substances

Concent. Units Liquid Qualifier

Mercury

1.0E+02 % YES

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Silo Area
b. Source Type	Surface Impoundment
c. Secondary Source Type	Burn Pit
d. Source Vol.(yd3/gal)   Source Area (ft2)	0.00   0.00
e. Source Volume/Area Value	0.00E+00
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	5.00E+01
g. Data Complete?	NO
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	1.00E-02
i. Data Complete?	NO
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	5.00E+01

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Parkis Mill Road

a. Wastestream ID	Battery Acid
b. Hazardous Constituent Quantity (C) (lbs.)	6000.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	6000.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	1.20E+00

Wastestream Constituent  
Hazardous Substances

Concent. Units Liquid Qualifier

Lead	5.0E+01	%	NO
Sulfuric acid	5.0E+01	%	YES

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Parkis Mill Road	
b. Source Type	Surface Impoundment	
c. Secondary Source Type	N.A.	
d. Source Vol.(yd3/gal)   Source Area (ft2)	0.00	0.00
e. Source Volume/Area Value	0.00E+00	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	6.00E+03	
g. Data Complete?	NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	1.20E+00	
i. Data Complete?	NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	6.00E+03	

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Hogback Road LF

a. Wastestream ID	Wastes
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	230000.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	4.60E+01

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Hogback Road LF	
b. Source Type	Landfill	
c. Secondary Source Type	N.A.	
d. Source Vol.(yd3/gal)   Source Area (ft2)	0.00	348480.00
e. Source Volume/Area Value	1.02E+02	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	0.00E+00	
g. Data Complete?	NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	4.60E+01	
i. Data Complete?	NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	1.02E+02	

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Firing Range 1

a. Wastestream ID	Lead
b. Hazardous Constituent Quantity (C) (lbs.)	3000.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	3000.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	6.00E-01

Wastestream Constituent  
Hazardous Substances

Concent. Units Liquid Qualifier

Lead 1.0E+02 % NO

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Firing Range 1
b. Source Type	Other
c. Secondary Source Type	N.A.
d. Source Vol.(yd3/gal)   Source Area (ft2)	0.00   0.00
e. Source Volume/Area Value	0.00E+00
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	3.00E+03
g. Data Complete?	NO
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	6.00E-01
i. Data Complete?	NO
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	3.00E+03

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Lead	< 2	NO	0.0E+00	ppm

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Firing Range 2

a. Wastestream ID	Lead
b. Hazardous Constituent Quantity (C) (lbs.)	200.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	200.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	4.00E-02

Wastestream Constituent  
Hazardous Substances

Concent. Units Liquid Qualifier

Lead	1.0E+02	%	NO
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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Firing Range 2
b. Source Type	Other
c. Secondary Source Type	N.A.
d. Source Vol.(yd3/gal)   Source Area (ft2)	0.00   0.00
e. Source Volume/Area Value	0.00E+00
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	2.00E+02
g. Data Complete?	NO
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	4.00E-02
i. Data Complete?	NO
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	2.00E+02

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Lead	< 2	NO	0.0E+00	ppm

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 3. SITE HAZARDOUS WASTE QUANTITY SUMMARY

No. Source ID	Migration Pathways	Vol. or Area Value (2e)	Constituent or Wastestream Value (2f,2h)	Hazardous Waste Qty. Value (2k)
1 Security Area	GW-SW-A	9.53E+01	0.00E+00	9.53E+01
2 Baptist Hill Rd LF	GW-SW-SE-A	0.00E+00	7.72E+01	7.72E+01
3 Swan School Rd	GW-SW-SE-A	0.00E+00	3.00E+03	3.00E+03
4 Silo Area	GW-SW-SE-A	0.00E+00	5.00E+01	5.00E+01
5 Parkis Mill Road	GW-SW-SE-A	0.00E+00	6.00E+03	6.00E+03
6 Hogback Road LF	GW-SW-SE-A	1.02E+02	4.60E+01	1.02E+02
7 Firing Range 1	GW-SW-SE-A	0.00E+00	3.00E+03	3.00E+03
8 Firing Range 2	GW-SW-SE-A	0.00E+00	2.00E+02	2.00E+02

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WASTE QUANTITY  
Knolls Kesselring - 10/03/93

## 4. PATHWAY HAZARDOUS WASTE QUANTITY AND WASTE CHARACTERISTICS SUMMARY TABLE

Migration Pathway	Contaminant Values	HWQVs*	WCVs**
Ground Water	Toxicity/Mobility 1.00E+04	10000	100
SW: Overland Flow, DW	Tox./Persistence 1.00E+04	10000	100
SW: Overland Flow, HFC	Tox./Persis./Bioacc. 5.00E+08	10000	1000
SW: Overland Flow, Env	Etox./Persis./Bioacc. 5.00E+08	10000	1000
SW: GW to SW, DW	Tox./Persistence 1.00E+04	10000	100
SW: GW to SW, HFC	Tox./Persis./Bioacc. 5.00E+08	10000	1000
SW: GW to SW, Env	Etox./Persis./Bioacc. 5.00E+08	10000	1000
Soil Exposure: Resident	Toxicity 1.00E+04	100	32
Soil Exposure: Nearby	Toxicity 1.00E+04	100	32
Air	Toxicity/Mobility 2.00E+03	10000	56

\* Hazardous Waste Quantity Factor Values

\*\* Waste Characteristics Factor Category Values

Note: SW = Surface Water  
 GW = Ground Water  
 DW = Drinking Water Threat  
 HFC = Human Food Chain Threat  
 Env = Environmental Threat

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GROUND WATER MIGRATION PATHWAY SCORESHEET  
Knolls Kesselring - 10/03/93

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GROUND WATER MIGRATION PATHWAY Factor Categories & Factors	Maximum Value	Value Assigned
Likelihood of Release to an Aquifer Aquifer: Glacial Till		
1. Observed Release	550	550
2. Potential to Release		
2a. Containment	10	10
2b. Net Precipitation	10	3
2c. Depth to Aquifer	5	5
2d. Travel Time	35	35
2e. Potential to Release [lines 2a(2b+2c+2d)]	500	430
3. Likelihood of Release	550	550
Waste Characteristics		
4. Toxicity/Mobility	*	1.00E+04
5. Hazardous Waste Quantity	*	10000
6. Waste Characteristics	100	100
Targets		
7. Nearest Well	50	2.00E+01
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	1.63E+02
8d. Population (lines 8a+8b+8c)	**	1.63E+02
9. Resources	5	5.00E+00
10. Wellhead Protection Area	20	0.00E+00
11. Targets (lines 7+8d+9+10)	**	1.88E+02
12. Targets (including overlaying aquifers)	**	3.04E+02
13. Aquifer Score	100	100.00
GROUND WATER MIGRATION PATHWAY SCORE (Sgw)	100	100.00

\* Maximum value applies to waste characteristics category.  
\*\* Maximum value not applicable.

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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors DRINKING WATER THREAT	Maximum Value	Value Assigned
Likelihood of Release		
1. Observed Release	550	550
2. Potential to Release by Overland Flow		
2a. Containment	10	10
2b. Runoff	25	17
2c. Distance to Surface Water	25	16
2d. Potential to Release by Overland Flow [lines 2a(2b+2c)]	500	330
3. Potential to Release by Flood		
3a. Containment (Flood)	10	0
3b. Flood Frequency	50	0
3c. Potential to Release by Flood (lines 3a x 3b)	500	0
4. Potential to Release (lines 2d+3c)	500	330
5. Likelihood of Release	550	550
Waste Characteristics		
6. Toxicity/Persistence	*	1.00E+04
7. Hazardous Waste Quantity	*	10000
8. Waste Characteristics	100	100
Targets		
9. Nearest Intake	50	0.00E+00
10. Population		
10a. Level I Concentrations	**	0.00E+00
10b. Level II Concentrations	**	0.00E+00
10c. Potential Contamination	**	0.00E+00
10d. Population (lines 10a+10b+10c)	**	0.00E+00
11. Resources	5	0.00E+00
12. Targets (lines 9+10d+11)	**	0.00E+00
13. DRINKING WATER THREAT SCORE	100	0.00

\* Maximum value applies to waste characteristics category.  
 \*\* Maximum value not applicable.

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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors HUMAN FOOD CHAIN THREAT	Maximum Value	Value Assigned
Likelihood of Release		
14. Likelihood of Release (same as line 5)	550	550
Waste Characteristics		
15. Toxicity/Persistence/Bioaccumulation	*	5.00E+08
16. Hazardous Waste Quantity	*	10000
17. Waste Characteristics	1000	1000
Targets		
18. Food Chain Individual	50	4.50E+01
19. Population		
19a. Level I Concentrations	**	0.00E+00
19b. Level II Concentrations	**	3.00E-02
19c. Pot. Human Food Chain Contamination	**	6.00E-05
19d. Population (lines 19a+19b+19c)	**	3.01E-02
20. Targets (lines 18+19d)	**	4.50E+01
21. HUMAN FOOD CHAIN THREAT SCORE	100	100.00

\* Maximum value applies to waste characteristics category.

\*\* Maximum value not applicable.

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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors ENVIRONMENTAL THREAT	Maximum Value	Value Assigned
Likelihood of Release		
22. Likelihood of Release (same as line 5)	550	550
Waste Characteristics		
23. Ecosystem Toxicity/Persistence/Bioacc.	*	5.00E+08
24. Hazardous Waste Quantity	*	10000
25. Waste Characteristics	1000	1000
Targets		
26. Sensitive Environments		
26a. Level I Concentrations	**	0.00E+00
26b. Level II Concentrations	**	1.50E+02
26c. Potential Contamination	**	0.00E+00
26d. Sensitive Environments (lines 26a+26b+26c)	**	1.50E+02
27. Targets (line 26d)	**	1.50E+02
28. ENVIRONMENTAL THREAT SCORE	60	60.00
29. WATERSHED SCORE	100	100.00
30. SW: OVERLAND/FLOOD COMPONENT SCORE (Sof)	100	100.00

\* Maximum value applies to waste characteristics category.  
 \*\* Maximum value not applicable.

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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors DRINKING WATER THREAT	Maximum Value	Value Assigned
Likelihood of Release to Aquifer Aquifer: Bedrock Aquifer		
1. Observed Release	550	0
2. Potential to Release		
2a. Containment	10	10
2b. Net Precipitation	10	3
2c. Depth to Aquifer	5	5
2d. Travel Time	35	35
2e. Potential to Release [lines 2a(2b+2c+2d)]	500	430
3. Likelihood of Release	550	430
Waste Characteristics		
4. Toxicity/Mobility/Persistence	*	1.00E+04
5. Hazardous Waste Quantity	*	10000
6. Waste Characteristics	100	100
Targets		
7. Nearest Intake	50	0.00E+00
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	0.00E+00
8d. Population (lines 8a+8b+8c)	**	0.00E+00
9. Resources	5	0.00E+00
10. Targets (lines 7+8d+9)	**	0.00E+00
11. DRINKING WATER THREAT SCORE	100	0.00

\* Maximum value applies to waste characteristics category.  
\*\* Maximum value not applicable.

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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET  
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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors HUMAN FOOD CHAIN THREAT	Maximum Value	Value Assigned
Likelihood of Release		
12. Likelihood of Release (same as line 3)	550	430
Waste Characteristics		
13. Toxicity/Mobility/Persistence/Bioacc.	*	5.00E+08
14. Hazardous Waste Quantity	*	10000
15. Waste Characteristics	1000	1000
Targets		
16. Food Chain Individual	50	0.00E+00
17. Population		
17a. Level I Concentrations	**	0.00E+00
17b. Level II Concentrations	**	0.00E+00
17c. Pot. Human Food Chain Contamination	**	0.00E+00
17d. Population (lines 17a+17b+17c)	**	0.00E+00
18. Targets (lines 16+17d)	**	0.00E+00
19. HUMAN FOOD CHAIN THREAT SCORE	100	0.00

\* Maximum value applies to waste characteristics category.  
\*\* Maximum value not applicable.

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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors ENVIRONMENTAL THREAT	Maximum Value	Value Assigned
Likelihood of Release		
20. Likelihood of Release (same as line 3)	550	430
Waste Characteristics		
21. Ecosystem Tox./Mobility/Persist./Bioacc.	*	5.00E+08
22. Hazardous Waste Quantity	*	10000
23. Waste Characteristics	1000	1000
Targets		
24. Sensitive Environments		
24a. Level I Concentrations	**	0.00E+00
24b. Level II Concentrations	**	0.00E+00
24c. Potential Contamination	**	0.00E+00
24d. Sensitive Environments (lines 24a+24b+24c)	**	0.00E+00
25. Targets (line 24d)	**	0.00E+00
26. ENVIRONMENTAL THREAT SCORE	60	0.00
27. WATERSHED SCORE	100	0.00
28. SW: GW to SW COMPONENT SCORE (Sgs)	100	0.00

\* Maximum value applies to waste characteristics category.  
\*\* Maximum value not applicable.

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SOIL EXPOSURE PATHWAY Factor Categories & Factors RESIDENT POPULATION THREAT	Maximum Value	Value Assigned
Likelihood of Exposure		
1. Likelihood of Exposure	550	550
Waste Characteristics		
2. Toxicity	*	1.00E+04
3. Hazardous Waste Quantity	*	100
4. Waste Characteristics	100	32
Targets		
5. Resident Individual	50	0.00E+00
6. Resident Population		
6a. Level I Concentrations	**	0.00E+00
6b. Level II Concentrations	**	0.00E+00
6c. Resident Population (lines 6a+6b)	**	0.00E+00
7. Workers	15	0.00E+00
8. Resources	5	0.00E+00
9. Terrestrial Sensitive Environments	***	0.00E+00
10. Targets (lines 5+6c+7+8+9)	**	0.00E+00
11. RESIDENT POPULATION THREAT SCORE	**	0.00E+00

\* Maximum value applies to waste characteristics category.

\*\* Maximum value not applicable.

\*\*\* No specific maximum value applies, see HRS for details.

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 SOIL EXPOSURE PATHWAY SCORESHEET  
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SOIL EXPOSURE PATHWAY Factor Categories & Factors NEARBY POPULATION THREAT	Maximum Value	Value Assigned
Likelihood of Exposure		
12. Attractiveness/Accessibility	100	1.00E+01
13. Area of Contamination	100	0.00E+00
14. Likelihood of Exposure	500	0.00E+00
Waste Characteristics		
15. Toxicity	*	1.00E+04
16. Hazardous Waste Quantity	*	100
17. Waste Characteristics	100	32
Targets		
18. Nearby Individual	1	1.00E+00
19. Population Within 1 Mile	**	4.00E+00
20. Targets (lines 18+19)	**	5.00E+00
21. NEARBY POPULATION THREAT SCORE	**	0.00E+00
SOIL EXPOSURE PATHWAY SCORE (Ss)	100	0.00

\* Maximum value applies to waste characteristics category.  
 \*\* Maximum value not applicable.

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AIR MIGRATION PATHWAY Factor Categories & Factors	Maximum Value	Value Assigned
Likelihood of Release		
1. Observed Release	550	0
2. Potential to Release		
2a. Gas Potential to Release	500	300
2b. Particulate Potential to Release	500	220
2c. Potential to Release	500	300
3. Likelihood of Release	550	300
Waste Characteristics		
4. Toxicity/Mobility	*	2.00E+03
5. Hazardous Waste Quantity	*	10000
6. Waste Characteristics	100	56
Targets		
7. Nearest Individual	50	1.00E+00
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	2.00E+00
8d. Population (lines 8a+8b+8c)	**	2.00E+00
9. Resources	5	0.00E+00
10. Sensitive Environments		
10a. Actual Contamination	***	0.00E+00
10b. Potential Contamination	***	3.70E+01
10c. Sens. Environments(lines 10a+10b)	***	3.70E+01
11. Targets (lines 7+8d+9+10c)	**	4.00E+01
AIR MIGRATION PATHWAY SCORE (Sa)	100	8.15E+00

\* Maximum value applies to waste characteristics category.

\*\* Maximum value not applicable.

\*\*\* No specific maximum value applies, see HRS for details.

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Record Information

1. Site Name: Knolls Kesselring  
(as entered in CERCLIS)
2. Site CERCLIS Number: NY5890008993
3. Site Reviewer: Ebasco Services Inc
4. Date: 10/08/93
5. Site Location: West Milton/Saratoga, NY  
(City/County,State)
6. Congressional District: 24
7. Site Coordinates: Single  
Latitude: 43 02'30. Longitude: 73 57'30.

Site Description

1. Setting: Rural
2. Current Owner: Federal
3. Current Site Status: Active
4. Years of Operation: Active Site , from and to dates: 1949 - present
5. How Initially Identified: Other Federal Program
6. Entity Responsible for Waste Generation:
  - Federal Facility
  - DOE
7. Site Activities/Waste Deposition:
  - Other - Firing Ranges
  - Surface Impoundment
  - Municipal Landfill
  - Industrial Landfill

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Waste Description

8. Wastes Deposited or Detected Onsite:

- Inorganic Chemicals
- Solvents
- Laboratory/Hospital Waste
- Acids/Bases
- Paints/Pigments
- Radioactive Waste
- Oily Waste
- Municipal Waste
- Lead
- Asbestos

Response Actions

9. Response/Removal Actions:

- Site Access Has Been Restricted
- Other Removal Action Has Occurred

RCRA Information

10. For All Active Facilities, RCRA Site Status:

- -Treatment, Storage & Disposal Facility
- -Municipal Landfill

Demographic Information

11. Workers Present Onsite: Yes

12. Distance to Nearest Non-Worker Individual: > 1/2 - 1 Mile

13. Residential Population Within 1 Mile: 0.0

14. Residential Population Within 4 Miles: 0.0

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Water Use Information

15. Local Drinking Water Supply Source:

- Ground Water (within 4 mile distance limit)

16. Total Population Served by Local Drinking Water Supply Source: 9384.0

17. Drinking Water Supply System Type for Local Drinking  
Water Supply Sources:

- Municipal (Services over 25 People)

18. Surface Water Adjacent to/Draining Site:

- Stream
- Wetland

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**ATTACHMENT 2**

TABLE 2 - RESULTS OF SENSITIVITY ANALYSIS FOR KNOLLS KESSELRING SITE

	Current Score	Score without Firing Range Lead	Score without Sediment Samples	Score without Firing Range Lead and Sediment Samples
Groundwater Migration Pathway	100.00	64.85	100.00	64.85
Surface Water Migration Pathway	100.00	100.00	16.00	5.12
Soil Exposure Pathway	0.00	0.00	0.00	0.00
Air Migration Pathway	8.15	2.62	8.15	2.62
<b>Site Score</b>	<b>70.83</b>	<b>59.61</b>	<b>50.80</b>	<b>32.55</b>

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